Northwest Indian Fisheries Commission

NEWS

Vol. XVI Number 3
Summer 1996

Inside:

BEING FRANK

State Elections Important To Tribes

By Billy Frank, Jr.
NWIFC Chairman

How important are state elections to the tribes?

The tribes are sovereign nations with their own governments and inherent rights dating back thousands of years. Those rights are protected by treaties and a special trust relationship with the United States. So why should we care about state elections?

The answer is obvious. We are citizens of the state, too. Many of our children attend public schools. We shop in many of the same stores as other state residents. We pay taxes to support the state government, and we depend on water and other natural resources used by many others as well. We are citizens of Washington who share a stake in the decisions made by state government. We have just as much right to serve in non-tribal public office, vote for candidates of our choice and campaign for certain political positions as the next guy.

There are those who consider this unfair. Why should Indians be able to be citizens of states as well as their own nations? Legally speaking, the federal Indian Citizenship Act of 1927 provides all the substantiation we need. Simply stated, it made Indians U.S citizens without negatively affecting their status as members of their sovereign tribes. Historically speaking, Indians have never relinquished the right to be tribal members. Despite all the rhetoric you may have heard about Indians being defeated, those rights were specifically protected by peace treaties. Treaties, according to the United States Constitution, can be made only by Congress and only with other sovereign nations.

The facts are there. The history is there. The treaties are there and there is no legal nor moral reason these things should change. The question that should be asked is: What motivates some people to want to abrogate the treaties and take away tribal sovereignty? The answer to this question is simple. It's the same answer it has always been. There is no difference between those who advocated the mass murder of the tribes 150 years ago and those who advocate the unilateral abandonment of the treaties today. Whether it's land or fish in question, they want tribal resources, and they don't think Indians should be able to stand in the way of their getting them. A treaty is a contract, and a contract is a contract, except when it comes to Indians.

That is the mentality we see certain candidates displaying in the current campaign, and it's one good reason state elections are important to the tribes.

On The Cover: Muckleshoot tribal fishermen unload their big catch of sockeye on the shore of Lake Washington. The summer fishery on the lake was the first in eight years for both treaty fishermen and non-Indian anglers. See story on Page 5. *Photo: L. Harris*

Northwest Indian Fisheries Commission News

The NWIFC News is published quarterly on behalf of the treaty Indian tribes in western Washington by the Northwest Indian Fisheries Commission, 6730 Martin Way E., Olympia, WA 98516. Complimentary subscriptions are available. Articles appearing in NWIFC News may be reprinted.

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Tribes Begin Shellfish Surveys, Harvests On Some Private Lands

Several treaty Indian tribes in western Washington are beginning to exercise their right to harvest shellfish from private tidelands under a 1994 federal court ruling. The ruling, by Federal District Court Judge Edward Rafeedie, re-affirmed the tribes as co-managers of the shellfish resource and re-established their treaty-guaranteed rights to up to 50 percent of the harvestable shellfish in the region.

The Lummi Nation harvested shellfish from Birch Bay State Park and from the Semiah-moo area under existing agreements. "We've been cooperating with everyone and policing and monitoring (the digs)," said Merle Jefferson, tribal fisheries director for the Lummi Nation.

The Tulalip Tribes performed shellfish population surveys on private property along Hat Island, and are looking at harvests in the spring.

"We want to be good neighbors," said Francis Sheldon, Executive Director of Tulalip Fisheries, Wildlife and Enforcement. "With cooperation there can be more shellfish available for everyone."

While no commercial harvests have occurred on private property in clam and oyster rich Hood Canal, the Skokomish Tribe has begun surveying private beaches in preparation for future harvests.

"Everything went fine," said Dave Herrera, fisheries manager for the Skokomish Tribe. "We surveyed about three-quarters of a mile in three days, and there were no problems. A handful of people came out to see what (the surveyors) were doing, and they were all very nice."

Several steps must be taken before a tribe can harvest from private tidelands, including surveying the shellfish population and issuing a tribal regulation opening a private beach for harvesting.

Tulalip shellfish biologist Kelly Toy, left, digs clams as shellfish technician Jerry Bentler measures the bivalves as part of tribal shellfish surveys on Hat Island. *Photo: L. Harris*

Access to harvest areas on private tidelands are mainly through public access points, such as parks, marinas, boat launches, streets, or by water. Harvests are monitored and enforced by tribal officers to ensure the harvest occurs as described in the regulation.

Most western Washington tidelands owners will likely never have tribal harvesters on their beaches because of low shellfish population densities. *—D. Williams*

Board's Ruling Will Protect Habitat, Water Quality

Treaty Indian tribes are pleased with a recent landmark ruling by the state Pollution Control Hearings Board that provides greater protection for fish habitat and water quality.

The board ruled instream flows in the state's rivers and streams are a priority right for all citizens, and the Department of Ecology (DOE) must consider any application for groundwater withdrawal (wells) in light of its possible effects on instream flows.

The board affirmed the connection between groundwater and instream flows (hydraulic continuity), and said the two cannot be managed separately. The board also ruled DOE must consider the cumulative effects of proposed groundwater withdrawal applications on critical fish habitat and water quality.

"This ruling provides an important tool to protect fish and wildlife habitat and water quality," said Stan Jones Sr., chairman of the Tulalip Tribes.

The board's ruling resulted from appeals in 150 water rights decisions issued across the state by DOE earlier this year. Water rights applicants claimed the state couldn't deny groundwater rights to protect instream flows, and groundwater rights couldn't be denied unless the state could show a measurable effect on stream flows. The Tulalip and Muckleshoot tribes argued the state couldn't approve a water right without demonstrating there would be no impact to instream flows.

The board agreed, saying there is no question about the relationship between ground and surface waters and there can be no impairment of existing water rights. This is a significant ruling because it protects not only the fishery resource, but other senior water rights holders from further diminishment of their rights.

Federal Support Strong

Makahs Delay Gray Whale Hunt

The Makah Tribe has decided to defer until next year a request to hunt gray whales for cultural and subsistence use.

"The Makah Tribe is deferring our request to address the concerns of some delegates and educate people about the whaling needs and traditions basic to our people," said Marcy Parker, Makah Tribal Council member and a United States delegate to the International Whaling Commission (IWC). "We will return to this process next year to continue our rich whaling heritage."

The Makahs and the U.S. intend to re-submit the request to the IWC at its 1997 meeting when the overall gray whale aboriginal subsistence quota will be considered by the IWC. The commission presently permits a pool of up to 140 gray whales a year to be taken for aboriginal subsistence based on need by Russian native peoples. The Makah treaty-protected portion would account for a small part of a limited subsistence pool.

The Makah Tribe explicitly reserved the right to hunt whales in the Treaty of Makah, signed in 1855. Plans to resume their traditional whale harvest and treaty right are aimed at preserving a centuries-old marine hunting heritage for the young people. In a September 1995 vote, 73 percent of the tribal general assembly recommended the resumption of Makah's whaling rights.

The successful return of the whale is due partly to the unilateral decision of the Makah to suspend whale harvesting after the devastation caused by European and American commercial whalers through the first few decades of this century. Northern gray whale stocks have been growing at about 3 percent per year and have reached a total of more than 23,000, according to the National Marine Fisheries Service. The tribe seeks to harvest up to five gray whales, one for each of its traditional villages, in 1997 and beyond.

The upsurge of gray whale populations is a success story as whale populations flourished under protection of the U.S. Marine Mammal Protection Act and through efforts of the IWC. The once endangered whale was de-listed from the Endangered Species Act list in March, 1993.

> `We do this out of courtesty, but we will never relinquish our treaty-secured whaling rights.'
>
> — Hubert Markishtum

"In the spirit of cooperation and responsible marine mammal management, we will continue to seek IWC approval of our ceremonial and subsistence whaling activity," said Makah Tribal Council Chairman Hubert Markishtum. "We do this out of courtesy, but we will never relinquish our treaty-secured whaling rights."

Markishtum said the Clinton Administration is living up to its obligations to the tribes by supporting Makah in the international arena. The tribe has the full support of the U.S. delegation to the IWC. According to U.S. officials, the Makah's request fits squarely within the IWC aboriginal subsistence whaling category, which currently allows whaling by indigenous people in Russia, Alaska, Greenland, and St.Vincent and the Grenadines. The U.S. supports aboriginal ceremonial and subsistence rights world-wide, but continues to oppose commercial whaling.

During a recent visit, federal support for Makah whaling was emphasized by U.S. Department of Commerce Under-Secretary Jim Baker, director of NOAA, who committed agency support for the newly formed Makah Whaling Commission.

> "We want to make sure the resource is always healthy. The tribe is the first to recognize the need for harvest limitations — it's built into our values."
>
> — Dan Greene

Attempts to protest Baker's visit by radical animal rights advocate Sea Shepherd were thwarted when the Makah Nation blocked the protest vessel with a whaling canoe, and tribal police set up a blockade on the reservation. A subsequent protest attempt by Sea Shepherd to disrupt the Makah Days celebration in late August was stopped by a restraining order from a U.S. District Court judge.

The Makahs, who have always been involved in the management of salmon, halibut, goundfish and shellfish stocks within their usual and accustomed fishing areas, intend to fulfill their responsibilities for the management of whale resources as well, according to Makah Fisheries Director Dan Greene.

"We will be an active player to make sure the gray whale never goes back on the endangered species list," said Greene. "We want to make sure the resource is always healthy. The tribe is the first to recognize the need for harvest limitations — it's built into our values.

"It is really an issue of balance that was understood by our elders with their knowledge of the whales, their life cycles, migration patterns and habitat needs — harvesting only what was needed to protect populations," said Greene. "The tribe is part of that balance, and we understand and participate in that balance."

— C. Boysen

Lake Washington Sockeye

Fishery Made Possible By Muckleshoot Tribe

Anglers who enjoyed catching sockeye on Lake Washington this summer for the first time in eight years can thank the Muckleshoot Tribe for helping to make the fishery possible.

If not for the tribe's fish-counting program at the Ballard Locks, there would have been no way of knowing how many sockeye were returning to the lake this year, and if returns were high enough to support tribal and sport fisheries. The tribe assumed the cost of operating the fish-counting program four years ago when it was dropped by the state Department of Fish and Wildlife because of budget cuts.

"This effort made the sockeye fishery possible," said Muckleshoot tribal biologist Paul Hage. "The tribe didn't give up on Lake Washington sockeye. If the tribe had not dedicated the time, money and effort to count the fish at the locks, there would have been no way of knowing how many sockeye had reached Lake Washington. All we would have known is that there were a lot of fish. But we wouldn't have had any idea how many."

The tribal effort revealed that more than 490,000 sockeye were returning to the lake. With about 350,000 needed for escapement (fish allowed to escape harvest, spawn and perpetuate the run), about 140,000 sockeye were available to be split between Indian and non-Indian fishermen. In addition to the Muckleshoot Tribe, the Suquamish and Tulalip tribes also participated in the fishery.

Improved outmigrating conditions in freshwater and high ocean survival rates were major contributors to this year's high returns. Since 1988, when 650,000 sockeye returned, the run has been too small to support tribal or sport fisheries. Last year just 37,000 sockeye returned through the locks.

Tribal and non-Indian fishermen alike were excited about the fishery.

"This is beautiful," said recreational angler Manuel Rose, 70, as he stood on the shore of Lake Washington watching tribal fishermen unload their catches. "The thing about it is that everyone gets some action," said Rose, who has fished the lake for 50 years.

Muckleshoot fishermen Joe Daniels, foreground, and Robert Daniels remove a nice catch of sockeye salmon from their nets and toss them into a skiff at Lake Washington. *Photo: L. Harris*

"It was cool," said Muckleshoot tribal member Bridget Elkins as she waited to unload her catch. "It's been eight years since we could do this. It was exciting, to put it mildly."

Morgan Moses, another Muckleshoot tribal fisherman, agreed. "It felt good. Our goal is to do this every year."

— T. Meyer & L. Harris

Red Tide Closes Hood Canal, Port Gamble Bay Tidelands

For the first time in at least four decades, tribal and recreational shellfishing in northern Hood Canal and Port Gamble Bay has been shut down because of "red tide."

Scientists call the phenomenon paralytic shellfish poisoning (PSP). It's a natural toxin produced by single celled plants.

While blooms tend to be short-lived, lasting only a week or two, the toxins can remain in shellfish for much longer. Point No Point Treaty Council Shellfish Biologist Richard Childers said dangerous levels of PSP are usually found in filter-feeding organisms: clams, oysters, and mussels. The only way to detect it is laboratory testing.

"It is very toxic to humans, but it has no effect on the shellfish itself," Childers said. "In mild cases, people who ingest shellfish with PSP can experience tingling in their lips and fingers. In severe cases, it can cause a shutdown of the central nervous system. Cooking does not reduce the toxin.

"The tribes routinely test shellfish for PSP before every harvest, depending on the species," Childers said.

Harvesters can contact their fisheries office for red tide information. The state Department of Health operates a 24-hour, toll-free PSP hotline, 1-800-562-5632.

— D. Williams

Welcoming The Salmon

Native people of many ages and nations gathered on the Seattle waterfront in September for the "Dance on the Water" Pow Wow, part of the fourth annual Salmon Homecoming. The event, hosted by the tribes and Seattle Aquarium, features educational exhibits and demonstrations and a host of other activities to inform and educate the public about the importance of the salmon resource. *Photos: D. Williams*

Porpoise Alarm Test Shows Promising Results

Acoustic alarms show great promise discouraging harbor porpoise from entering tribal set nets in studies by the Makah Tribe and the National Marine Fisheries Service (NMFS).

On the heels of nine years of monitoring a small number of tribal gillnets in shallow bays and river estuaries, Makah and NMFS biologists have concluded that porpoises are 10.5 times less likely to get caught in nets equipped with acoustic alarms than in nets without the warning devices.

Even with healthy populations of harbor porpoise — over 22,000 animals along Washington and Oregon coastlines — the tribe and the federal agency want to protect as many porpoises as possible. Biologists estimate that each year less than 1 percent of the total population of porpoise find their way into the nets.

"We've been cooperatively monitoring bycatch since 1988 as part of our marine mammal management and protection efforts," said Makah Fisheries Harvest Management Biologist Denise Dailey. "In discouraging these animals from the nets, we not only help porpoises survive, but we also help our fishermen from losing gear, valuable fishing time and income for their families."

The experimental field test, located at Spike Rock just south of Makkaw Bay on the Makah Reservation, used broad-band signal acoustic alarms attached to the cork line of gillnets during the normal Makah fishing season. Porpoises avoid the nets as they hear the sonic alarms discharge in the water. The underwater transponders emit a "ping" sound to avert the animals. Porpoises in the act of pursuing and capturing prey evidently do not sense nets without the alarms, according to NMFS Wildlife/Fisheries Research Biologist Patrick Gearin.

"For the short term, the alarms seem to be very effective in warding off the porpoises," said Gearin. "If fishing efforts increase in the future, the alarms could be a good tool. Further testing will determine what the long-term responses of the animals will be."

"In the meantime, we will continue to monitor carefully all of the interactions of marine mammals in our fisheries," said Dailey. "We are concerned for the health of all species along our coast ." *— C. Boysen*

On Roosevelt Beach

Tribe, State Chart Razor Clam Stocks

Tribal and state shellfish technicians hit the Pacific Ocean beach south of the Quinault Reservation this summer to chart the territory of the razor clam.

Their joint mission was to assess the concentration and abundance of razor clams on Roosevelt Beach to aid development of future harvest plans.

Working in parallel lines, technicians from the Quinault Indian Nation and state Department of Fish and Wildlife used pumps to flush seawater into the beach sand at the base of a round metal screen. The water forced the clams to the surface to be captured with a dip net. Each clam was counted and measured and its location recorded.

"My expectation is that the stock assessment of this beach will determine abundance so we can forecast harvest levels that will establish quotas on harvestable clams in the seasons ahead," said Jim Harp, Quinault Nation policy analyst. "We need this information to implement the shellfish management plans we have developed."

The project is one component of the implementation of the recent shellfish decision by Judge Edward Rafeedie affirming the tribes' treaty right to harvest half of the available clams, crab, shrimp and other shellfish in western Washington. Stock assessment is a vital management tool, as it has been for salmon and steelhead harvests managed cooperatively by the tribes and the state since *U.S. v. Washington* re-affirmed tribal treaty fishing rights in 1974.

> "We want a sustainable clam population that will benefit both tribal and non-tribal harvesters."
>
> — Jim Harp

Population assessments will not only provide data for determining future treaty and non-treaty shares, but also gauge the impact of recent harvests on clam populations.

In the most recent state recreational clam season this spring, more than 17,000 recreational clam diggers showed up during the season opening of 14 miles of ocean beach — an estimated one recreational digger for every four feet of beach. The four-day recreational harvest yielded 2 1/2 times the tribal commercial clam harvest of 28,000 pounds with an average of four clams per pound.

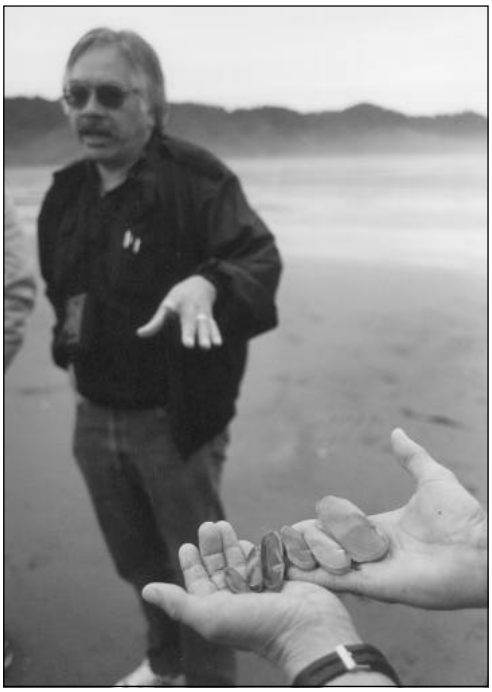
"Next year there will have to be some payback from the state to achieve a balance for an equal share," said Harp.

The QIN staff continued the hydraulic stock assessment work on-reservation and at the Kalaloch Beach north of the reservation into mid-August.

Quinault is undertaking this project despite severe budget shortfalls in congressional funding.

"Shellfish management is being supplemented by salmon management funds — we need more shellfish funding to adequately implement the shellfish decision mandated by the court." said Harp. Harvest emphasis is on recreational fisheries, but so far all of the data has been based on commercial harvest data," said Harp.

Tribal fisheries staff also conduct phytoplankton sampling for domoic acid, PSP (paralytic shellfish poisoning) and water quality to ensure that shellfish are healthy for all consumers, tribal and non-tribal, according to Harp.



Top: A Quinault tribal shellfish survey crew flushes razor clams from the sand. Above: Jim Harp, tribal policy analyst, discusses the range of age classes in a sample.
Photos: C. Boysen

"At the present recreational harvest rate, there won't be any clams left for anyone. With this stock assessment we can get a handle on future harvest rates," said Harp. If clam stocks are overharvested, recovery will take longer. It takes more than two years for razor clams to reach the minimum harvestable size — 4 to 4 1/2 inches long.

"We want a sustainable clam population that will benefit both tribal and non-tribal harvesters," said Harp. — *C. Boysen*

On White River

Spring Chinook Making Noise On The Radio

The Puyallup Tribe is taking to the airwaves to learn more about the spawning migration behavior of a depressed run of spring chinook returning to the Puyallup River system.

Tribal biologists are equipping spring chinook bound for the White River, a major tributary to the Puyallup River, with tiny radio transmitters as part of the study. White River spring chinook are the last remaining spring chinook run in Puget Sound. Once in a spiral toward extinction for many decades, the run is now rebuilding slowly.

The study's goal is to gain a better understanding of differences in how the wild and hatchery components of the run move up the system, how they are affected by man-made obstacles such as dams, and where the wild component of the run eventually spawns, said Russ Ladley, Puyallup tribal environmental biologist.

One of the mysteries investigated by the biologists is why some of the returning spring chinook move through the river system more quickly than others. While some adults will hold up in the lower Puyallup River for five or six weeks before beginning a slow, steady spawning run, others spend just a few weeks before swimming 20 or 30 miles upstream in a single day.

One explanation is that the fish remain in one location while they adjust from life in saltwater to life in freshwater and become ready to breed. Another is that some males and females use some of the time to bond before swimming as a pair upstream to spawn.

> "We're very interested in how these wild fish are using the spawning habitat... "
>
> — Russ Ladley

To track the run's upstream migration, about 125 returning White River spring chinook were captured and had miniature radio transmitters inserted into their stomachs. The transmitters do not harm the fish because they cease feeding once they enter the river. Each transmitter broadcasts a different signal, allowing tribal fisheries staff to identify individual fish and follow each unique upstream journey.

Michael MacDonald, Puyallup tribal fisheries biologist, uses a portable receiver to search for a radio-tagged White River spring chinook. *Photo: T. Meyer*

Tribal biologists take to the river system daily with portable receivers to locate the tagged fish. The time, date and location of each tagged fish is recorded to help provide an overall picture of the run's migration pattern.

Hatchery fish carrying radio tags are recovered at the Muckleshoot Tribe's White River Hatchery near Buckley. The facility, which opened in 1989, is dedicated to rebuilding the run.

Wild fish returning to the system's upper reaches are captured near the tribal hatchery at the first of two dams on the river and trucked to the upper watershed to spawn. Those carrying radio tags are closely followed as they seek out spawning areas.

"We're very interested in how these wild fish are using the spawning habitat above Mud Mountain Dam. In particular we want to know if they are spawning in the glacial main stem of the river or using smaller tributaries," Ladley said.

White River spring chinook have been a limiting factor for fisheries from the Strait of Juan de Fuca to south Puget Sound since the late 1970s, Ladley said. Their successful recovery could help improve fishing opportunities for both Indians and non-Indians throughout the region. It also could reduce the possibility that they will have to be protected under the Endangered Species Act, he added.

"Anything we can learn about the life history and habitat requirements of this stock will be used to improve management and ultimately help their survival," Ladley said.

The study, which is being paid for with funds provided to implement the Pacific Salmon Treaty between the United States and Canada, began in June and was scheduled to run through October. — *T. Meyer*

Celebrating Our Earth

Bruce Miller and Leona Miller, Skokomish, drum and sing during Port Gamble S'Klallam Environmental Day festivities. The fourth annual event celebrated tribal forest management practices and included a variety of educational activities. *Photo: D. Williams*

Makah Fishermen Set Their Nets For Pacific Whiting

Plagued by declining salmon runs, tribal fishermen from Neah Bay are harvesting whiting — a cod-like species once regarded as a scrap fish. The Makah Tribe has begun harvesting whiting under a treaty set-aside of 15,000 metric tons based on a treaty tribal allocation supported by the National Marine Fisheries Service (NMFS).

Huge ocean-going factory trawlers scoop up millions of tons of the bountiful fish to supply the lucrative Japanese surimi market. The total 1996 harvest of whiting for U.S. fishing operations was set for 212,000 tons, with all but the Makah allocation going to non-Indians.

Makah Marine Fish Biologist Steve Joner said the tribe entered into an agreement with Supreme Alaska Seafoods, which is processing the Makah harvest on a factory ship. "Tribal fishers deliver whiting for processing at sea, because there are no shoreside processors in the vicinity of tribal fishing areas," he said.

Makah fishermen learned quickly and production was high enough to keep processing going smoothly, said Joner. The harvest concluded in early August.

"The Makah want to see expanded fishing opportunity, but also responsible fishery management guiding the distribution and allocation of the resource," Joner said. Because Pacific whiting are highly migratory, it is essential to consider the total harvestable surplus available in tribal usual and accustomed areas absent the harvest elsewhere.

> "The Makah want to see expanded fishing opportunity, but also responsible fishery management..."
>
> — Steve Joner

The allocation of 15,000 metric tons is a one-year target to give NMFS and the tribe time to set an appropriate treaty share.

Whiting has been a staple for the seafood industry as a source of fish protein for producing fish sticks and other frozen fish products. It can also be used for surimi, the fish protein paste that goes into making imitation crab legs, shrimp and other products. *— C. Boysen*

Tribes Concerned By Atlantic Salmon Escape From Net Pen

An escape of more than 60,000 pen-reared Atlantic salmon near Cypress Island this summer had Lummi Nation fisheries officials urging better coordination with state fish managers.

The tribe says it wasn't informed of the spill until its fishers encountered the Atlantic salmon during a one-day ceremonial fishery in the Nooksack River several days after the spill. Much of the tribe's concern centers on how non-native fish will affect wild salmon stocks already in critical condition in the Nooksack.

The net pen, owned by ScanAm, was damaged by strong currents caused by one of the most extreme tidal changes of the year.

Lummi Nation Natural Resources Director Merle Jefferson said the tribe has a long-standing policy against the use of marine net pens for rearing fish to adult size because of potential interference with treaty fisheries and the possibility of spreading diseases to wild salmon.

ScanAm met with fisheries managers of the Lummi Nation and Nooksack tribes and will cooperate with the tribes in assessing impacts to wild salmon in the Nooksack and in establishing emergency response plans for the future.

"We are extremely disappointed at the lack of planning and coordination by the state agencies to deal with this sort of contingency, but are quite pleased with the cooperative response we have received from the management of ScanAm," said Jefferson. *— L. Harris*

Simple Plastic Grate

Excluder Cuts Bycatch In Shrimp Test Fishery

A simple plastic grate might be all that's needed to reduce the amount of unwanted species harvested in trawl shrimp fisheries.

In the process of harvesting hundreds of thousands of pounds of shrimp from northern Puget Sound and Pacific Coast fishing grounds, commercial trawlers also harvest a significant quantity of other species, which is known as "bycatch." A recent test fishery and study conducted by the Suquamish Indian Tribe and the Washington Department of Fish and Wildlife (WDFW) in the eastern Strait of Juan de Fuca looked at how much bycatch is taken in a regional pink shrimp fishery, and how much of a reduction in bycatch a fish excluding device can create.

The study compared the shrimp and bycatch harvests of two vessels fishing side-by-side using slightly different gear. Suquamish tribal member Ray Forsman's gear included a fish excluder, known as a "Nordmore Grate."

Just as a stormwater grate prevents leaves and other debris from entering a sewage system system, the fish excluder prevents fish, shellfish and anything else larger than its three-quarter inch openings from entering a net. Shrimp are small enough to pass through the grates of the excluder and into the closed end of the net, while fish and items too large to pass through the excluder are directed out of the net through an exit hole.

The vessels fished side by side and towed their gear for the same amount of time. Once the nets were retrieved, the entire catch was observed and processed by tribal and state fisheries biologists.

In 11 sets, Forsman's boat with the fish excluder in place, harvested more than 9,500 pounds of shrimp and just 40 pounds of bycatch — mostly Pacific herring. The larger beam trawler, fishing without the excluder, harvested nearly 27,900 pounds of shrimp and about 525 pounds of bycatch — including spiny dogfish, spotted ratfish, various flatfish and Pacific herring.

"The bottom line is that bycatch was minimal in the study area, even without the fish excluder," said Jay Zischke, harvest management biologist for the Suquamish Tribe. "But there are other regions, particularly along the Pacific coast, where bycatch of halibut and other important species is a problem, and this device can have a positive effect. Fishers can reduce their bycatch in two ways; either reduce pink shrimp fishing time or implement some form of excluder into the present fishing practice. It is a piece of gear that adds management flexibility."

Above: Biologists sort through pink shrimp to record the bycatch. Left: Suquamish fisherman Ray Forsman shows the fish excluder. *Photos: D. Williams*

Forsman said some fisheries management entities have expressed doubt that the grate and its accompanying exit hole can really cut down on unwanted bycatch.

"They think there has to be a complicated solution to this," he said. "But sometimes, the best solutions are simple."

The grate cost Forsman about $300. "I'm adjusting it and fiddling with it all the time to get the angle right," he said. "But it's really a very minimal cost item for what you get out of it.

"You will lose some shrimp when they're extremely heavy — when you're into them thick on good fishing grounds and there are more shrimp coming to the grate than can get through," Forsman said, noting a downside to installing the grate. But when shrimp densities are low, as is the case in many shrimp fishing areas, the percentage of shrimp lost because of the excluder drops.

—D. Williams

DNA Test Can Find Shellfish Toxins Fast

June Schumack, Quileute tribal water quality technician, collects plankton to test for the presence of biotoxins. *Photo: C. Boysen*

Just as criminals get caught by a telltale trail of DNA clues, the Quileute Tribe is on the track of toxic biological culprits that can make shellfish fatal.

The tribe, in cooperation with the University of Washington, is encouraged about a new test that provides an early warning system for detecting toxin-producing algae.

The tribe has stepped up shellfish monitoring as part of its management efforts to implement the 1994 court decision re-affirming tribal shellfish harvest rights.

Tribal Marine Biologist Mitch Lesoing is hopeful that a DNA probe will dramatically improve shellfish toxin testing. "Currently we take samples every two weeks, and verification in the laboratory can take up to a week," said Lesoing. "Within this timeframe, toxins such as domioc acid may have come and gone before people can be alerted."

The new test takes just two to four hours, can be done on site, and no special training is needed. Water samples taken in areas where algae bloom occurs are filtered and reduced to an extract. A chemical probe reads the extract and changes color if potential biotoxin-producing phytoplankton are present. If enough of the samples change color, a notice can immediatly go to harvesters.

> "This test gives us advance warning before toxins have had a chance to take effect."
>
> — Jim Postal

Quileute tribal technicians joined the University of Washington's Jim Postal in field research near LaPush to collect samples for the new procedure. "The test eliminates time and labor-intensive sampling techniques," said Postal. "Razor clams tend to accumulate toxins while mussels tend to flush out toxins quickly, and many times you only see the residual effects of a domoic acid infestation. This test gives us advance warning before toxins have had a chance to take effect."

The "dipstick" test, as inventor Chris Scholin of the Monterey Bay Aquarium Research Institute calls it, is a quantum leap in assuring public health. "The DNA probe is proactive. We won't have to resort to always reacting to toxin algae blooms after the fact," he said. Following additional research, the test will be ready in one or two years, he added. — *C. Boysen*

Septic Systems, Farms Blamed

Part Of Bay Closed To Shellfishing

A portion of Port Gamble Bay, one of the last bays in Kitsap County with waters clean enough for commercial shellfish production, has succumbed to water pollution. The Washington State Department of Health (DOH) has declared a portion of the southern end of the bay off-limits to shellfishing.

"This closure was caused by high concentrations of fecal coliform bacteria present in water samples," said Peter Bahls, habitat biologist for the Port Gamble S'Klallam Tribe. "Septic systems and hobby farms with livestock are potential sources."

The action doesn't affect the tribe's commercial, ceremonial and subsistence harvests on its reservation. Tests on the tribe's beaches have shown those areas are safe for shellfish production.

The closure is a wake-up call for the tribe.

"This is a problem that affects everyone's resources, and it is the tribe's highest priority to protect this bay and its water quality," said Harry Fulton, vice chairman of the Port Gamble S'Klallam Tribe. "More than 600 tribal members depend upon the bay for most of their livelihood, and the tribe can't allow any further degradation to occur."

The state and tribe formed a shellfish closure response team to identify sources of fecal coliform and develop clean-up plans.

The tribe, state and county agencies are developing a watershed protection project. Their goals are to build partnerships with landowners for stream restoration and protection projects.

"We will be concentrating our efforts over the next year to clean up the bay," Fulton said. "This problem has several causes, and everyone needs to be involved in the solution." — *D. Williams*

Warm Water Threatening Elwha Chinook

An extremely weak return of adult chinook salmon to the Elwha River and the threat of diseases and warm water conditions are spelling trouble for the big fish. A joint recovery plan developed by tribal, state and federal biologists is in place to improve the chinook's chances.

At best, only 1,800 chinook are expected to spawn this fall in the Elwha, a river that once boasted a sizeable run of kings that topped 100 pounds. At worst, only 900 could spawn if expected high water temperatures and low flows occur.

Chinook have dwindled over the years, due in large part to two fish-blocking dams on the river — the Elwha and Glines Canyon dams. Built in 1911 without fish passages, the Elwha Dam cuts off all but the lower 4.9 miles to salmon spawning.

The dam makes conditions difficult for chinook returning to the river. It takes water from near the surface of the reservoir that's warmed by the sun and passes it through turbines to create power. This creates water temperatures up to eight degrees Fahrenheit warmer than normal and increases the likelihood of outbreaks of fish-killing diseases. Dermocystidium and Ichthyophthirius thrive in warm water and killed more than 50 percent of the chinook run in some years.

The situation could get worse, said Pat Crain, fisheries manager for the Lower Elwha Klallam Tribe. A low snow pack in the Olympic Mountains, just 5 percent of normal, is expected to further degrade the river's condition.

These factors led the tribe and the Washington Department of Fish and Wildlife (WDFW), in consultation with the U.S. Fish and Wild Service, Olympic National Park, and Peninsula College, to remove as many fish as possible from the river before diseases wipe them out.

The state has installed a fish weir just upstream from their hatchery outfall that encourages salmon moving upriver to enter the hatchery where cool, disease-free water awaits the chinook. State crews also dredged a new channel around a shallow cascade in the river to improve fish passage.

A crew of tribal and state employees and volunteers has been methodically capturing chinook from Sisson's Hole, a sizeable spring-fed backwater where migrating fish tend to congregate to escape the current and warm water. Through August, 485 chinook had been taken from the river.

Area volunteers helped capture Elwha chinook and move them to cooler water. *Photo: D. Williams*

Once at the hatchery, fish are inoculated against bacterial kidney disease. Water in the holding pond is treated with a chemical to kill fungus that can attack the fish.

"These efforts are intended to avert disaster," Crain said. "The tribe supports the idea of doing this as an emergency action for this year, but the final solution to this problem is removing the two dams, which would remove the cause of the warm water in late summer."

The tribe is doing more work this year to create pools, log jams and side channels in the lower river to provide spawning habitat for other species this year, and rearing habitat for young chinook in future years. — *D. Williams*

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